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UNITED STATES DEPARTMENT OF AGRICULTURE
Extension Service
Washington 25, D. C.

REPORT OF

INTER-REGIONAL LIVESTOCK PRODUCTION AND MARKETING CONFERENCE

College Park and Beltsville, Maryland - June 12-15, 1950

U. S. DEPARTMENT OF AGRICULTURE
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Some 70-odd persons, from 16 States and the District of Columbia, attended this year's conference. They included extension and research workers in the fields of livestock production and marketing and representatives of public and private service agencies. A list of those in attendance will be found on pages 25 and 26 of this report.

The conference was one of a series of similar gatherings, staged at different locations in the general Appalachian area, with some omissions, over a period of 20 years or more.

The invitation to meet at College Park and Beltsville on this occasion was extended jointly by Director T. B. Symons, of the Maryland Extension Service, and Dr. T. C. Byerly, Chief, Animal Husbandry Division, Bureau of Animal Industry, Agricultural Research Center, USDA.

This report is not to be regarded as a complete account of the proceedings of the conference, which included a half-day educational tour in nearby Maryland. One full day was spent at the Agricultural Research Center, Beltsville.

A number of the program participants distributed processed and other material pertaining to their subjects during the conference. Such materials are not included in this report. C. A. Burmeister's talk on the "Long-Time Outlook for Livestock" has been mimeographed separately, and a copy is included with this report.

At the opening of the conference, committees were appointed to prepare reports on several of the more important fields of interest. These reports, which were adopted by the conference, are included here to provide guidance in the further development of the program.

At the closing session of the conference, members expressed appreciation for the opportunity given them to assemble for a review of activities, to exchange ideas, to learn of progress in research, and to develop plans for the further improvement and coordination of their efforts throughout the area. They also solicited the support of administrative agencies for the holding of a similar conference in 1951.

Luke M. Schruben
Extension Economist
United States Department of Agriculture

C. D. Lowe
Extension Animal Husbandman
United States Department of Agriculture

CONSUMER REACTIONS AND THE PRODUCER

Excerpts From Talk

By R. B. Corbett, Agricultural Counsel
National Association of Food Chains

Madam Homemaker is the boss of all livestock men in America. Her weekly purchase of 8-1/3 pounds of meat at the retail counter is the most important transaction in the livestock and meat industry. If she does not buy, there is little point to the work of the livestock producer, the meat packer, and the retailer.

Madam Homemaker buys more beef than pork and very little lamb. One survey shows that the quantities bought each week per family were 3.20 pounds of beef, 2.92 pounds of pork, 0.37 pounds of veal, 0.39 pounds of lamb, and 1.26 pounds of all other meats.

Income makes a difference in the quantity of meat Madam Homemaker will buy. If her income is less than \$1,000 for the year, she will buy only 5.4 pounds of meat per week for her family. If her income is \$7,500 or more for the year, she will buy 10.2 pounds of meat per week for her family. In recent years, the purchases of low-income families have increased more than those of other groups. Families with incomes in the lowest third increased their meat purchases 29 percent from 1942 to 1948, while during the same period the families with incomes in the highest third decreased their meat purchases 2 percent.

Self-service in retail stores is the great development in meat distribution in recent years. In 1948, there were about 1,000 self-service meat counters in the country and today there are probably 18,000 — and the number is continuing to grow. Madam Homemaker likes self-service. She says so when asked about it, she says so in her patronage, and she says so in the quantity of meat she buys. There has been an increase in the purchase of meat in stores that have installed self-service. Sometimes the increase has not been immediate, but there has been an increase as compared with stores that have not shifted to this method.

Lower-priced cuts, surprisingly, have sold relatively better from self-service counters than from service counters. There is no one to influence Madam Homemaker's decisions. She makes them alone and unaided. It is complete democracy in retail food buying.

The retailer is the representative of the meat industry at the point of sale to the consumer. He is building clean, attractive and convenient stores in which Madam Homemaker can do her shopping easily and quickly. It is not uncommon for a modern super-market to invest \$50,000 in just the equipment and inventory of the store. In addition to meats, the store may carry 3,000 other items.

Efficiency is the watch-word in the modern retail store. Back in 1900, out of each dollar of sales, retailing took 40 to 45 cents. During the last three months of 1949, a large group of stores took only 17 cents of the consumer's dollar, and did a lot of warehousing as well as retailing. Some predict that before the present decade is over, the retail food store will operate for only 15 cents of the consumer's dollar.

The meat team of producer, packer, retailer, and consumer, must understand each other and the work that each performs to get the best results. Last winter this team working together increased the use of pork in the face of what appeared to be an over-supply to the extent no taxpayers' money was necessary to pay support prices to producers under the price-support program. Such teamwork is a form of self-help from which all can benefit.

ECONOMIC IMPORTANCE OF PASTURE

By R. D. Jennings
Bureau of Agricultural Economics, USDA

This subject is tied in closely with the number of roughage-consuming livestock and, probably, we should start our discussion there. Roughage-consuming livestock consist mostly of cattle, both dairy and beef, sheep, and horses and mules. As you know, the number of horses and mules has declined steadily until there are now less than a third the number 30 years ago. The number of sheep has gone down 45 percent in the last 8 years to the smallest number in 83 years of record. The number of cattle, particularly beef cattle, has held up not far below the wartime peak. However, the number of all roughage-consuming livestock combined is at the bottom of the cycle and about the same number as at the low points of former cycles in 1912, 1927, and 1937. An upward turn in this cycle is now beginning, and it seems probable that much of this increase will be in beef cattle. Furthermore, much of this increase may be in the eastern half of the United States and the South may share in the increase more than it has in the past. Already in some southern states the number of beef cattle is larger than during the war.

As nearly two-thirds of our production of beef comes from pasture and grazing, we cannot think of one without the other. Consider for a moment the importance of pasture and grazing in connection with our land area and feed supply. More than half of the land area of this country is grazed at least a part of each year. In the West this percentage is high. In the East and South about 10 to 15 percent of the land area, excluding woodland, is grazed. Much of this pasture is poor, worn-out land that contributes little more than an exercise place for livestock. Poor as much of it is, pasture and grazing account for a third of all feed consumed in this country. In the North and East, pasture accounts for 15 to 25 percent of all feed and in the South for 20 to 35 percent. Probably a third of all the protein consumed by livestock comes from pasture and 25 percent from hay and silage. About 35 to 40 percent of the feed for dairy cows is from pasture. In the South this figure is about 50 percent. Sixty percent of the feed for beef cattle in the United States comes from pasture and in the South this figure is 75 percent or more. In the Northeastern states, three-fourths of the pasture is utilized by dairy cattle and in the South probably about half of the acreage in pasture is utilized by dairy cattle. These figures show that pasture as it exists today is a very important part of our livestock economy.

Considering its importance, probably less research has been done on pastures than on other feed crops to increase their yields and to fit them into farming systems.

Recently greater attention is being given to pastures. This is due to: (1) the realization that several of our major cash crops are in a surplus situation or soon will be; (2) that more livestock products are in the interest of better nutrition for the Nation; (3) that more meat can be consumed by our growing population at profitable prices to farmers than was heretofore thought probable; (4) that more grass and hay crops fit into a program for conserving our soil resources; (5) that a livestock-forage system of farming generally gives a better distribution of labor throughout the year; (6) that as much or more money can be made with a farming system that leans toward a grazing-forage system of farming than one that leans the other way. The last reason on which the farmer must be sold before he makes any shift is all-important.

Studies in progress indicate that many farmers in widely different parts of the country have made this shift to their own satisfaction and profit. However, this shift to more forage almost always involves increasing the productivity of pasture land, which means cash expenditures for lime, fertilizer, and seed. Many farmers consider that now, when prices of lime and fertilizer are low compared with prices of meat, is the time to build up their pasture land. The index of fertilizer prices is 144 and that of meat animals 342. Thus, fertilizer would still be cheap relative to meat animals if meat animals were half the price they are now.

Tentative conclusions from studies in the Corn Belt are that a high forage system would generally, but not always be more profitable than the cash-grain or general farming systems but that it would involve new investment and a higher risk if feeder cattle were purchased to use the roughage. Farmers would work more days but the increase would come largely in winter. This shift to more pasture and hay involves increasing the productivity of the land through fertilization and liming. This is especially true of our so-called permanent pastures, which comprise by far the greater part of the pasture acreage. Many of these pastures in the East produce less than 50 pounds of beef per acre in a season.

This shift to more forage also means choosing pasture mixtures or growing supplemental pasture crops that give an even flow of feed throughout the season. In the North bluegrass pastures are commonly flush in May and June and dry up in July and August. If the number of livestock is geared to the flush production season, they must be fed expensive hay or silage or grain later on, or a sharp decline in rate of growth or production of milk will result. The flush season growth cannot be carried over to be eaten in July and August because it decreases severely in digestible nutrients and in protein. The digestible nutrients in pasture must be utilized when available. Pasture, however, can be cut and put up as grass silage while fresh and green and stored for future use.

The South has a great advantage over the North because of the longer growing season. It can make up any lack in natural fertility with fertilizer. Three extra months in summer mean perhaps 150 pounds additional gain on a steer on pasture. In addition winter pasture crops are available for 2 to 3 months, virtually stretching out the season to nearly year-round grazing.

In this connection, it may be pointed out that the increased population on the West coast is taking more of the cattle for slaughter that formerly came to the Corn Belt as feeder cattle. In the future the Corn Belt will have to rely more on locally raised cattle and cattle from the Southern states to fatten in its feed lots. A general improvement of the average quality of cattle in the South will help that area

take advantage of this demand. There are still too many mature beef cattle weighing only 500 to 700 pounds to be seen along the roads of the South although the number is noticeably less than 15 to 20 years ago. It is useless to improve pastures and forage unless the cattle to use it are high enough in quality to utilize feed efficiently.

What about the production that can be expected from grazing? On good tillable land in the Corn Belt, 300 pounds of gain per acre on cattle for the season was formerly considered good and the average was much lower than this — perhaps only 150 pounds. Now we expect 400 to 500 pounds of gain per acre or more on the better managed pastures on good land. Good cropland in the North produces nearly as much feed from well-managed pastures as it does from the usual rotation and at a lower cost. However most of this feed must be used as it grows during the summer.

Some irrigated pastures in the West support 3 to 4 head of cows per acre for 8 months. There are scattered individual reports in the South of more than 500 pounds of beef per acre on good land in 6 months and some people expect this figure to be increased 50 percent or even doubled. On the other hand, the average acre of non-tillable pasture in the eastern half of the United States furnishes very little feed in a year. It often takes 4 to 5 acres of such land to support one animal for 5 to 6 months. This is about equivalent to a half ton of hay per acre. This land contributes little to a farm; it is really on a permanent vacation. Renovation and fertilization usually brings such land back so that it will produce 2 to 3 times as much feed.

The average farmer does not pay much attention to his pasture land. It is left to take care of itself. When the hay gets too thin to cut, land is pastured for the next year or two until it is time to start the rotation over. Untillable pasture land is given even less attention. Few farmers realize the feed that could be produced from their pasture acres with a few dollars spent for lime, fertilizer, and seed.

The yield that can be obtained from pasture is not the final measure of what the pasture is worth, however, for there are costs to be considered — expense for seed lime and fertilizer, labor of mowing weeds, expense of keeping up the fences, etc. Pasture is usually considered a lowcost feed, but it must be utilized as it grows. If it is necessary to buy feeder cattle in the spring when they are usually high in price and to sell them in the fall when the price is low, in order to use up the feed on a pasture, then the feed from that pasture may not return a profit. It is not the fault of the pasture but of the organization of the farm. Pasture must be fitted into the farm plan and livestock program.

In making a careful appraisal of the effect of a shift to more forage and livestock many things must be considered: (1) the initial cash investment that will be required for liming, fertilization, seed, livestock, buildings and fences; (2) the current outlays to keep the program going; (3) the number of head of livestock that can be carried and the increased production that can be expected; (4) the kind of livestock program that fits the farm and the farmer such as whether he will keep a breeding herd or depend upon buying stocker and feeder cattle to utilize the forage; (5) the acreage of feed crops needed to complete his program. Pasture cannot be considered as a separate enterprise but only as it fits into and contributes to the whole farm business.

Grassland systems of farming are usually thought to be extensive systems that require large acreages to provide an adequate farm income. It is probably true that a general shift toward a grazing system of farming would mean a tendency toward larger farms and a consolidation of small farms. However, there are many opportunities to give greater emphasis to forage production and utilization on present types and sizes of farms through moderate increases in acreage of forage crops and more attention to yield and quality of these crops. It is not necessary to go as far as the 70-acre farmer in the South with 58 acres of open land, who increased the cattle carried from 11 to 64 head by shifting from grain crops entirely and increasing the yield of alfalfa and pasture by heavy use of lime, phosphate, and other fertilizer.

On the other hand, a farmer with 295 acres of cropland and pasture cut out the 40 acres of grain crops that he formerly grew, but kept the same number of beef cattle, about 90 head. This farmer had reared his family and wanted to take it easy. He could have carried 2 to 3 times as many cattle by stepping up pasture and hay yields. Quite a number of farmers were following a similar plan to save labor. Most of these were older farmers. There is plenty of room for substantial shifts between these extremes.

There is no cut and dried grazing forage system suited to all farms. Each farmer should work out the system that suits his land, his age, and his desires. The plan may be worked into a little at a time, or a substantial change may be made at one time. Many of the better farmers have thought the problem through and are making the shift in some degree — great or small. This shift should be undertaken only if one is able and willing to use the most improved practices with reference to pasture renovation, seed mixture, fertilization, etc. Success depends primarily upon increasing productivity per acre of pasture and forage much above previous levels.

SIGNIFICANT RESULTS FROM RESEARCH AND MARKETING ACT RESEARCH ON LIVESTOCK MARKETING

- A PANEL DISCUSSION -

Harry C. Trelogan, ARA, Moderator
V. John Brensike, BAE
Preston Richards, P&MA
C. G. Randell, FCA

(Introductory Remarks by Harry C. Trelogan)

When I spoke to this group 2 years ago about the Research and Marketing Act, I emphasized the complexity of the Act. I want to reiterate that emphasis and point out that marketing represents only a part of the work conducted under the Act. In addition, I want to stress that there is a wide array of marketing work conducted under the Act pertaining to livestock, as well as to other agricultural commodities. While the work is conducted by a number of different agencies performing different types of research or related functions, it is coordinated in a manner that provides for each agency to make a contribution to a broad problem. No better illustration of this coordination can be found than that evidenced in the field of hog marketing. It would be possible for us here today to orient the panel about this coordinated work,

but we have refrained from doing so because of the emphasis that has been given to hog marketing in the other parts of your conference.

I just want to mention that if we did so we would bring to the panel (1) representatives of the Bureau of Animal Industry to discuss the development of meat-type hogs through breeding, (2) representatives of the mid-west Agricultural Experiment Stations and the Bureau of Agricultural Economics to discuss their regional research on marketing by carcass weight and grade, (3) representatives of the Farm Credit Administration to discuss their supplementary work on the introduction of meat-type hogs and improved swine carcasses for commercial distribution, and (4) representatives of the Production and Marketing Administration to discuss how the results of this research are being applied to live hog and meat grading.

Instead of taking the time for a comprehensive review of such a coordinated program, I have asked the members of our panel to discuss only a few selected items that may appear quite unrelated. The selection has been made primarily on the basis of projects with which you may have had little acquaintanceship in the past and which we think are likely to yield results of particular significance to livestock marketing in the Appalachian region.

You will note that the remarks are not confined to research, but will refer also to service items such as changes in grade standards. The common feature is that all of the work has either been directly financed from or been stimulated by the Research and Marketing Act.

COST AND MARGIN RESEARCH
CONDUCTED BY BUREAU OF AGRICULTURAL ECONOMICS
(Brief Summary)

By V. John Brensike

The current series of farm-to-retail margins for the market basket and for livestock and livestock products is reported monthly in the Marketing and Transportation Situation. This series, of course, carries no breakdown showing the retailers', wholesalers', and other margins. A study conducted in 1949 with marketing research funds made this breakdown for the year 1947, and compared the margins during this period with those of 1939 and 1932. This study, therefore, shows the changes in the margins from a depression year to a year of approximately normal times and then to a year of high prices.

Auction markets became considerably more important between 1932 and 1939, and their importance increased somewhat more between 1939 and 1947. The services rendered and charges made at these markets during these three different periods differed somewhat for that reason. Average charges at auction markets for marketing 100 pounds of livestock were 35 cents in 1947, as compared with 22 cents in 1939 and 19 cents in 1932 for all species combined on the basis of their relative importance in terms of gross weight. These charges varied by species, with those for cattle and hogs lower than for calves and sheep.

In spite of the doubling of these marketing charges and margins, the marketing margins were relatively more stable than were retail prices. Thus, the farmer's share of the consumer meat dollar increased from 34 cents in 1932 to 37.5 cents in 1939 and 63.9 cents in 1947. Marketing margins are also much more stable in the downturn of prices and a decrease in the retail prices generally result in an even faster decrease in the farm value than in the farmer's share of consumer meat dollar.

More than half of the marketing research, on a national, regional, or State basis, has been conducted at the farmer's end of the marketing system; for example, livestock marketing. However, in 1947, retailing absorbed about 40 percent of the marketing margins and livestock marketing only about 5 percent. This does not mean that the retailing of meat is inefficient, but it does indicate the importance of learning more about the services rendered and the costs incurred at this level.

A meat-retailing pilot study is now under way in a Pennsylvania city, and it is planned to extend this in both the Northeast and Southeast. Since the project is still in its early stages, no results are yet available for release. However, by intensive (store and record study for one month in each quarter) and extensive (one visit) methods, information about the services rendered, the margins taken, and particularly some of the major factors influencing these margins, is being gathered.

PROPOSED CHANGES OF THE STANDARDS FOR CARCASS BEEF GRADES
PRODUCTION AND MARKETING ADMINISTRATION

(This topic was discussed by Preston Richards)

FARM CREDIT ADMINISTRATION PROJECTS
(Brief Summaries)

By C. G. Randell

Project No. 126 -- Introduction of Meat-Type Hogs and Improved Swine Carcasses for Commercial Distribution.

The principal objective is to determine methods of measuring the difference in value of meat-type and lard-type hogs and to develop ways and means of reflecting these differences to producers.

The cooperating agencies include Detroit Packing Co., Shen-Valley Meat Packers, Inc., Michigan State College, Ohio State University, Virginia Polytechnic Institute, Bureau of Animal Industry, and Farm Credit Administration.

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In 1948 cut-out tests were made on 693 hogs at Detroit Packing Co. An additional 301 hogs were tested at this company in 1949. In 1950, 637 hogs were selected and tested at Shen-Valley Meat Packers, Timberville, Va. In the 3 years' tests, all hogs were appraised in the yards before slaughter for length and for percentage of primal cuts. In the 1950 tests the final carcass grade of each animal was estimated.

Some observations on the results of the work to date:

1. In analyzing results at Detroit, 10 Minnesota crosses were compared, weight for weight, with 7 domestic breeds. The tests showed practically no difference in the two groups in percentage of five primal cuts to live weight, in percentage of fat, bone, and lean in selected cuts of ham and bacon, and in values of the five primal cuts and four minor cuts figuring the relative value of 100 pounds of live weight of each group.
2. As much variation was found within each breed and cross as between breeds and crosses. Distinct meat-type hogs were found in all crosses and breeds.
3. In making individual selections of meat-type hogs versus fat-type hogs, it is easy to show variation in value of over \$1 a hundred live weight, but on average droves of meat-type hogs and fat-type hogs the difference in value is frequently only 25 to 75 cents a hundred live weight.
4. Thickness of back fat materially affects the value of hog carcasses. For example, in the Detroit tests, 182 hogs in the 201-220 pound group, with an average range of back fat of 40 to 49 millimeters and an average live weight of 210.5 pounds showed a value of \$15.82 a hundred; 221 hogs in the 30 to 39 millimeters back fat range averaging 209.1 pounds showed a value of \$16.45, or 63 cents a hundred live weight difference on a variation of only 10 millimeters in back fat.
5. Mine-run hogs showing poor breeding are more difficult to appraise on foot than good quality hogs.
6. A lot of work needs to be done before we can say definitely how much faulty conformation in hogs should be penalized.
7. Hogs can be more easily graded when they are within definite weight classifications.

Large cooperative order buyers were consulted to obtain their experience in getting premiums on meat-type hogs. One reports occasional premiums of as high as 50 to 75 cents a hundred on meat-type hogs; another, premiums of 10 to 25 cents a hundred on hogs of this type moving to two packers on the west coast. Another order buyer reports a premium of 25 cents a hundred on hogs from well-known feed lots where past experience has shown a high percentage of meat-type hogs with a high dressing percentage. Another large order buyer reports that he can get a premium of 25 cents and in isolated cases 50 cents a hundredweight on a full load of meat-type hogs. He states that it does not pay to cut off these hogs for shipment to packers, as the short, chuffy hogs remaining will be penalized more than the premium received.

Two midwestern packers were questioned; one is paying 25 cents a hundred premium on neat-type hogs within a weight range of 200 to 270 pounds, and the other is paying 40 cents a hundred premium on strictly meat-type hogs of medium weights. Both packers report that they are satisfied with their program of paying premiums.

Project No. 83 - Processing of Farm Products by Cooperative Associations.

Objectives -- To determine ways and means whereby the processing of livestock and livestock products by frozen food locker and related plants can be improved, quality of products standardized and improved, costs reduced, wastes eliminated, marketing and distribution services expanded, and the spread between the producer and consumer narrowed, through utilizing the facilities of producer cooperative associations.

Cooperating agencies -- The Frozen Food Locker Section and Livestock and Wool Section of the Cooperative research and Service Division, Farm Credit Administration.

A survey was made of 70 frozen-food locker associations in nine Midwestern, Southwestern, and Southeastern States. The results of this survey were published as Miscellaneous Report No. 126, entitled "Processing by Frozen Food Locker Cooperatives." Some of the weaknesses of the plants surveyed which the study brought out were:

1. Wasteful utilization of both edible and inedible byproducts.
2. Inadequate records and poor systems of determining costs of various services.
3. Lack of labor-saving equipment adapted to small operations.

In an attempt to correct some of these weaknesses and to discover methods for improving operations a "pilot plant" project was initiated in cooperation with a locker plant in Illinois which carries on a sizable volume of wholesale meat sales in addition to its regular locker operations. A small modern sausage kitchen was installed, personnel was trained, and experimental tests were run on various types of equipment and sausage products.

A detailed cost and margin study is now under way in which information is obtained on each department in this plant in order to determine the costs of performing various services. Different merchandising methods are being tried out.

Preliminary results of this study would indicate that it is possible for a locker plant to produce high-quality sausage and various smoked-meat products.

PROGRESS IN TESTING BEEF CATTLE FOR PERFORMANCE

(See page 27 for summary of discussion on this topic.)

REPORT OF THE COMMITTEE ON RMA PROJECTS

1. Projects Considered

Five major livestock marketing projects were considered. These were:

- a. Western ewe replacements.
- b. The marketing of heavy lambs.
- c. A training program for extension workers—live animal grading.
- d. The development of a marketing system that will enable producers to sell livestock on a merit basis.
- e. Feeder purchases and sales between areas.

2. Regional Aspects of Projects

Projects (a) and (e), which deal with western ewe replacements and feeder purchases and sales between areas, are regional in character. We understand that a regional extension RMA project is being set up in the range country. It is our feeling that this work could be of material assistance to extension specialists in the South and East, if information were made available concerning sources, character, and seasonal availability of supplies with current reported sales prices in the various range States. This information could be given to the various States seeking feeder calves or western ewe replacements.

We do not believe that a regional project is necessary in the East and South. We do recommend, however, that an advisory committee of specialists, representing the areas covered by this Inter-Regional Livestock Production and Marketing Conference, be set up to assist the western RMA regional marketing project leaders in formulating plans for getting information to us.

We are not interested in the actual buying and selling of livestock. What we want is information that will help our producers and producer organizations to do a better job of getting good livestock at favorable prices.

The marketing of heavy lambs (b) might best be solved by not producing them. It is probable that many producers profit by producing them in spite of the market discount. There is an urgent need for more information on the wholesale prices of lambs by weight, grade, and times of sale. We, therefore, recommend that the Federal office of the Extension Service and the BAE compile a price history of lamb sales for a period of years.

Project (c) which deals with a training program for extension workers in live animal grading should be conducted on a regional basis. This is not in the nature of a regional RMA project, but we feel that it is much needed in view of the new work in live animal grading.

Project (d) which considers the advisability of developing a marketing system that will enable producers to sell livestock on a merit basis can best be handled on a State or area basis within the State. There already are numerous marketing plans in the various States that make it possible for producers to sell livestock and wool on a merit basis.

The wool pools in operation in various States in the area help farmers to get a good price for a good grade. This is just one example of a marketing system that is on a merit basis. Would it not be well for each State to write up a detailed description of the operation of the various pools, auctions, and other sales set-ups that are on a quality basis and make that information available to all other States represented in this conference?

The general adoption of the proposed standards for grades of slaughter barrows and gilts might make it easier to sell hogs on the basis of their carcass value.

3. Recommendations for Needed RMA Research

- a. A comparison of the cost of production, sale prices, and profit of medium-weight and heavy-weight lambs.
- b. Cost of production, sale prices, and profit of the Landrace hog crosses versus the purebred breeds.

Kenneth Hood, Pennsylvania, Chairman
Robert S. Boal, West Virginia
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G. W. F. Cavender, Tennessee
Paul Fletcher, North Carolina
Joseph W. Houston, Tennessee
R. D. McNair, South Carolina
M. W. Muldrow, Arkansas
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REPORT OF COMMITTEE ON
EVALUATING HOGS ON BASIS OF MERIT

Situation

1. The bulk of hogs are ordinarily sold on a weight basis with little consideration given to cut-out values and their effect on the price paid. In consequence, the producer of quality hogs rarely receives the true value of his product.
2. With such a system in effect, it is a simple matter for commission firms to favor customers of long standing who market poor-quality hogs at the expense of producers marketing hogs of superior quality. In other words, high-quality hogs all too rarely sell at a price commensurate with their value.
3. Owing to the increasing competition from vegetable shortenings, the demand for lard is steadily decreasing. It is generally known that a carcass with $1\frac{1}{2}$ to $1\frac{3}{4}$ inches of backfat, and weighing 215 to 225 pounds, yields sufficient lard for two, whereas a carcass with $2\frac{1}{2}$ to 3 inches of backfat yields more than enough lard for three persons.

4. Frequently, the type of hog that is most profitable to the producer may not yield the highest quality carcass. Under the present system of marketing, hogs that may be overfat when they reach the acceptable top-price market weight are seldom discriminated against by the pork processor.

Objective

To effect a wider adoption of a hog of the type and conformation, regardless of breed, that will produce a maximum of desirable cuts with sufficient finish to make them of high quality.

Recommendations

1. Give full support to RMA projects established to provide a suitable system of slaughter hog grades.
2. Acquaint more packers with the benefits they will receive from an improved system of grading, such as the one in operation at the Shen-Valley plant. This should arouse their interest in buying hogs on a merit basis.
3. Extension workers should make every effort to educate producers on the type of hog that will produce desirable carcasses. In this connection it is believed that most progress can be made by:
 - a. Promoting meat-type hogs through proper selection within breeds or strains.
 - b. Selecting hogs at proper weight and finish to produce top-quality carcasses.
 - c. Promoting the adoption of approved feeding and management methods by producers.
 - d. In all this, keeping in mind that any type of hog recommended must be one that is capable of yielding a high proportion of its live weight in primal cuts, and making a profit for the producer.

Grady Sellards, Kentucky, Chairman
R. L. Hiner, USDA
R. O. Williams, Georgia
Jack Kelley, North Carolina
W. R. Clark, Tennessee
Boyd T. Whittle, Maryland

REPORT OF COMMITTEE ON
LIVESTOCK PARASITE CONTROL

CATTLE

Ectoparasites

DDT should not be used as an insecticide for dairy cattle, in dairy barns, or on feed crops that may be fed to dairy animals. Methoxychlor is considered a substitute for use on dairy animals without any indication of harmful effects. In the interest of safety, DDT should not be used on cattle being finished for market.

Horn Flies — It has been shown that effective horn-fly control can be obtained by the use of a 0.5-percent solution of methoxychlor on dairy cattle and cattle being finished for slaughter. DDT, TDE, and toxaphene as a 0.5 percent spray may also be used for horn-fly control on beef cattle.

Control — It is realized that different methods of application will be used and the concentration of sprays and the amount of material may vary with the locality and method of application. On the average stock farm, the materials will be applied by hand sprayers and small power sprayers.

Wettable powder is the preferred form of material for use in horn-fly control. Wettable powder has been found to be economical and effective under a wide variety of conditions, and no toxic symptoms have been observed in treated animals. A good emulsion concentrate, properly formulated and mixed, can be used. At present, however, it is difficult to designate specific emulsions for general use.

The concentration of spray and the quantity to use per animal depend upon the method of application and local conditions. As a general guide 0.5 percent (8 pounds of 50-percent wettable powder to 100 gallons of water) concentration may be considered standard. If concentrations higher than 0.5 percent of DDT, methoxychlor, or TDE are used, the amount of spray should be reduced correspondingly. In the case of toxaphene, however, in the interest of safety to animals, it is recommended that the concentration of toxaphene not exceed 0.5 percent.

The quantity of spray necessary to wet an animal thoroughly will depend upon the size of the animal and the method of application. The quantity of spray required for horn-fly control will average from 1 to 1.5 quarts per head on herds of mixed-size animals.

Cattle Lice — The materials recommended for control of lice on beef cattle are rotenone, DDT, methoxychlor, toxaphene, TDE, lindane, and benzene hexachloride. For louse control on dairy cattle, rotenone, methoxychlor, pyrethrum, and lindane may be used.

1. If no application has been made for horn-fly control, use one of the following treatments in the fall:

- a. For Beef Cattle -- One thorough application of 0.5-percent DDT, TDE, toxaphene, or methoxychlor spray is recommended. Two treatments at 14 to 18-day intervals with rotenone spray containing a minimum of 1 pound of 5-percent Derris or cube per 100 gallons of water, are suggested.
- b. For Dairy Cattle -- Rotenone sprays, as suggested under "a" above, may be used. Two treatments with pyrethrum sprays containing .025 percent pyrethrins are also recommended. Methoxychlor should be used as a 0.5-percent spray. One treatment may be sufficient for practical control. If lindane is used, a concentration of 0.03 percent is recommended. Two applications of 1-percent rotenone or 10-percent methoxychlor dust at 15-day intervals are suggested.
- c. Spraying, dipping, or dusting with rotenone in cattle-grub control operations will control lice, provided coverage is thorough.

Cattle Grubs -- Rotenone is still the only toxicant recommended for the control of cattle grubs. The rotenone powder may be used as a dust or water suspension, and should be 325-mesh fineness and contain 5-percent rotenone. It may be applied as a spray, dust, wash, or dip.

Spray -- Power spraying with 400 pounds or higher nozzle pressure gives fast and efficient control. Complete saturation of grub-infested areas on the animal is essential.

Formula for Spray -- Use $7\frac{1}{2}$ pounds of 5-percent rotenone (or its equivalent to contain 0.04-percent rotenone-bearing powder) in 100 gallons of water. The amount generally needed is 2 quarts per animal. No wetting agent is needed if spray is applied with a power sprayer equipped with a suitable agitator.

Dusts -- Treating the infested animals with 3 ounces of at least 1.5-percent rotenone dust is very effective, but slow, since the dust must be rubbed into the hair. The dust should contain approximately 1 part by weight of rotenone-bearing powder to 2 parts by weight of a heavy diluent, such as tripoli earth or phrophyllite.

Washes -- Treating by washes is very effective for the control of cattle grubs, although it is a slow, laborious procedure. The wash is applied to the infested area of the animal, which is scrubbed with a stiff brush. One pint per grown animal should be used.

Formula for wash -- 12 ounces of 5-percent rotenone-bearing powder; 2 ounces of soap or some other desirable wetting agent; and 1 gallon of water.

Interval between treatments: For the most economical control, apply the material at 30-day intervals during the grub season. Treatment should start shortly before the first grubs reach maturity. New materials, such as benzene hexachloride, chlordane, and chlorinated camphene are now definitely known not to control cattle grubs. Area control for grubs is strongly recommended, since heel flies usually migrate for only a short distance.

Screw Worms -- To reduce losses from screw worms, livestock owners are urged to examine animals at least two times each week and treat all infested or uninfested wounds with Smear 62, or similar preparations. They should avoid if possible operations on animals during the active screw-worm season. Control of ticks and horn flies will reduce the number of screw-worm cases.

Ticks -- Complete coverage of animals with sprays containing 0.5-percent toxaphene or a combination of 0.025-percent gamma benzene hexachloride and 0.5-percent DDT are recommended for control of the Gulf Coast, Lone Star, and winter ticks. These sprays applied in ears of infested animals will also control the spinose ear tick. A pine oil-xylene solution containing 5-percent technical benzene hexachloride (10-12-percent gamma isomer) has also proven effective when applied in the ears of infested animals.

Internal Parasites

Phenothiazine is the drug of choice against most of the injurious species of gastrointestinal nematodes. The standard therapeutic dose is 20 grams (about 2/3 ounce) for each estimated hundredweight, the total dose not exceeding 60 grams (about 2 ounces.) Doses of 10 grams (about 1/3 ounce) per hundredweight are effective for removing large stomach worms, trichostrongyles, and nodular worms, and such dosage should be used where these parasites are known to be the chief offenders. In general, the best control is achieved by the treatment of young stock immediately prior to each grazing season and at other times as infestation occurs. The drug may be administered in capsules, in the feed, or as a drench. Directions accompanying the product used should always be followed.

SHEEP

Ectoparasites

Fleece Worms -- The fleece-worm treatment using Formula 793F consisting of:

- 10 percent diphenyl
- 1 percent triton x 70
- 5 percent N - butyl alcohol
- 84 percent benzol

is still recommended, but preliminary research indicates that DDT, chlordane, and toxaphene at concentrations of 2 percent are superior to 10 percent diphenyl in protecting animals from reinfestation. Gamma benzene hexachloride at a concentration of 0.2 percent is also suggested. In areas where Formula 793F is unavailable, Smear 62 has been used with good results.

Sheep Ticks and Sheep Lice — Ticks and lice may be controlled by using 1 pound of 5-percent rotenone in 100 gallons of water as a dip. Ticks and lice may also be eradicated by one dipping in DDT used at the rate of 4 pounds of 50 percent DDT wettable powder in 100 gallons of water. Toxaphene, chlordane, TDE and methoxy-chlor at concentrations of 0.25 percent, may be used. If benzene hexachloride or lindane are used, a concentration of 0.25 percent gamma isomer is suggested.

Sheep Head Bot (Oestrus Ovis) Control of the sheep head bot may be obtained by injection of 3-percent aqueous lysol solution into the nasal passages under 30 to 40 pounds pressure.

Internal Parasites

Gastrointestinal Roundworms — Phenothiazine is the drug of choice. Therapeutic doses of 20 to 40 grams, usually 25 grams or about 1 ounce, are recommended for adult animals, and about one-half of these amounts for lambs under 60 pounds. Ordinarily, considerable protection against serious parasitism is afforded by treatment of all animals of a breeding flock at least once during late winter or early spring before they are turned onto new pastures. In the interest of safety, treatment should not be given to ewes during the last month of pregnancy. The method of administration is the same as recommended for cattle.

The free-choice administration of phenothiazine in loose salt or mineral mixture is a simple, effective regimen of parasite control, particularly during grazing season. It consists in keeping continuously accessible to flocks a mixture of 1 part, by weight, of phenothiazine and 9 to 14 parts of salt or mineral supplement. Other sources of salt should be eliminated.

Tapeworms — One-gram doses of spray-grade, acid, lead arsenate in gelatin capsules are safe and effective for the removal of intestinal tapeworms (*Moniezia*) from sheep weighing over 60 pounds. For lambs, a dose of 1/2 gram of lead arsenate is recommended. A new treatment, teniathane, is promising but is regarded as still in the experimental stage.

INTERNAL PARASITES OF GOATS

In general, the same measures that are used for sheep are applicable to goats. If therapeutic doses of phenothiazine are given to dairy goats, the animals must be removed from the milk line for 3 days after treatment to permit elimination of the pink dye that is excreted in the milk. There is recent evidence that free-choice mixtures of phenothiazine and salt (or mineral supplement), 1 part to from 12 to 17 parts, is efficacious for keeping parasites of dairy goats at minimal levels without resulting in discoloration of the milk.

SWINE

Ectoparasites

Mange — Benzene hexachloride (0.13 gamma isomer) applied as a spray will eradicate hog mange with a single treatment. There is indication that chlordane will prove to be an effective treatment. This treatment will also control lice.

Lice — DDT, toxaphene, chlordane, TDE, methoxychlor sprays or dips containing 0.5 percent of the insecticide are recommended for controlling lice on hogs. Lindane or benzene hexachloride insecticide sprays or dips should contain 0.05 percent gamma isomer.

Internal Parasites

Large Roundworms — The sodium fluoride treatment is recommended as the most effective measure for removing and controlling ascarids. It consists in the administration of the chemical (technical grade, tinted) at a concentration not exceeding 1 percent (and not lower than 0.75 percent) in dry, ground feed for a period of 1 day. This treatment is contraindicated in pregnancy, lactation, or any form of gastroenteritis. For best control, market pigs should be treated after weaning and again about 2 months later.

Conversion Tables

For convenience in using the foregoing recommendations, the committee proposes that conversion tables be included with this report. (They will be found on the following three pages — Editor.)

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CONVERSION TABLES*
FOR DDT AND METHOXYCHLOR

Weight of 50% wettable powder for indicated quantity of water

Desired % DDT or 100 gal. methox- chlor	1b—oz	1b—oz	1b—oz	1b—oz	1b—oz	1b—oz	1b—oz	1b—oz	1b—oz	1b—oz	1b—oz
	50 gal.	40 gal.	30 gal.	20 gal.	10 gal.	5 gal.	4 gal.	3 gal.	2 gal.	1 gal.	
.25	4—3	2—1	1—11	1—4	0—13	0—6.6	0—3.3	0—2.6	0—2	0—1.3	0—.6
.50	8—5	4—2	3—5	2—8	1—11	0—13	0—7	0—5	0—4	0—2.7	0—1.3
.75	12—8	6—4	5—0	3—12	2—8	1—4	0—10	0—8	0—6	0—4	0—2
1.0	16—11	8—5	6—11	5—0	3—5	1—10	0—13	0—10	0—8	0—5	0—2.5
1.25	20—13	10—6	8—6	6—4	4—2	2—1	1—0	0—13	0—10	0—7	0—3
1.5	25—0	12—8	10—0	7—8	5—0	2—8	1—4	1—0	0—12	0—8	0—4
1.75	29—3	14—9	11—11	8—12	5—13	2—15	1—7	1—3	0—14	0—9	0—4.6
2.0	33—5	16—11	13—6	10—0	6—11	3—5	1—10	1—5	1—0	0—10	0—5.3
2.25	37—8	18—12	15—1	11—4	7—8	3—11	1—13	1—7	1—2	0—11	0—6
2.5	41—11	20—13	16—11	12—8	8—5	4—2	2—1	1—10	1—4	0—13	0—6.6
3.0	50—0	25—0	20—0	15—0	10—0	5—0	2—8	2—0	1—8	1—0	0—8

* From the Animal Husbandry Guide for Extension Workers, 1950-51 of the Georgia Agricultural Extension Service.

FOR BENZENE HEXACHLORIDE SPRAY MIXTURE FOR HOG MANGE

Weight of 50% wettable powder for indicated quantity of water

γ gamma isomer in BHC powder	100 gal. lb--oz	50 gal. lb--oz.	40 gal. lb--oz	30 gal. lb--oz	20 gal. lb--oz	10 gal. lb--oz	5 gal. lb--oz	4 gal. lb--oz	3 gal. lb--oz	2 gal. lb--oz	1 gal. lb--oz
3	40 - 0	20 - 0	16 - 0	12 - 0	8 - 0	4 - 0	2 - 0	1 - 9.6	1 - 2.2	0 - 12.8	0 - 6.4
4	33 - 5	16 - 10	13 - 5	10 - 0	6 - 10	3 - 5	1 - 10	1 - 5	1 - 0	0 - 10.6	0 - 5.3
5	26 - 10	13 - 5	10 - 10	8 - 0	5 - 5	2 - 11	1 - 5	1 - 1	0 - 12.8	0 - 8.5	0 - 4.2
6	20 - 0	10 - 0	8 - 0	6 - 0	4 - 0	2 - 0	1 - 0	0 - 12.8	0 - 9.6	0 - 6.4	0 - 3.2
7	18 - 5	9 - 3	0 - 7.5	5 - 8	4 - 11	1 - 13	0 - 14.7	0 - 11.7	0 - 8.8	0 - 5.9	0 - 2.9
8	16 - 10	8 - 5	6 - 10	5 - 0	3 - 5	1 - 11	0 - 13.3	0 - 10.6	0 - 8.0	0 - 5.3	0 - 2.6
9	15 - 0	7 - 8	6 - 0	4 - 8	3 - 0	1 - 8	0 - 11.9	0 - 9.6	0 - 7.2	0 - 4.8	0 - 2.4
10	13 - 5	6 - 11	5 - 5	4 - 0	2 - 10	1 - 5	0 - 10.6	0 - 8.5	0 - 6.4	0 - 4.3	0 - 2.1
12	10 - 0	5 - 0	4 - 0	3 - 0	2 - 0	1 - 0	0 - 8	0 - 6.4	0 - 4.8	0 - 3.2	0 - 1.6
Lindane											
25	5 - 0	2 - 8	2 - 0	1 - 8	1 - 0	0 - 8	0 - 4	0 - 3.2	0 - 2.4	0 - 1.6	0 - .8

FOR BENZENE HEXACHLORIDE SPRAY MIXTURE FOR CATTLE

Weight of 50% wettable powder for indicated quantity of water

gamma isomer in BHC powder	100 gal.	50 gal.	40 gal.	30 gal.	20 gal.	10 gal.	5 gal.	4 gal.	3 gal.	2 gal.	1 gal.
	lb--oz	lb--oz	lb--oz	lb--oz	ob--oz	lb--oz	lb--oz	lb--oz	lb--oz	lb--oz	lb--oz
3	8-0	4-0	3-3.2	2-6.4	1-9.6	0-12.8	0-6.4	0-4.8	0-3.6	0-2.4	0-1.2
4	6-11	3-5.4	2-10.6	0-2.0	1-5.2	0-10.7	0-5.3	0-4.0	0-3.0	0-2.0	0-1.0
5	5-5	2-11	2-2.1	1-9.6	1-1	0-8.5	0-4.2	0-3.2	0-2.4	0-1.6	0-.8
6	4-0	2-0	1-9.6	1-3.2	0-12.8	0-6.4	0-3.2	0-2.4	0-1.8	0-1.2	0-.6
7	3-11	1-13	1-7.4	1-1.6	0-11.7	0-5.9	0-2.9	0-2.2	0-1.65	0-1.1	0-.55
8	3-5	1-10	1-5.3	1-0	0-10.6	0-5.3	0-2.7	0-2.0	0-1.5	0-1.0	0-.5
9	3-0	1-8	1-3.1	0-14.4	0-9.6	0-4.8	0-2.4	0-1.8	0-1.35	0-.9	0-.45
10	2-10	1-5	1-1.0	0-12.8	0-8.5	0-4.3	0-2.1	0-1.6	0-1.2	0-.8	0-.4
12	2-0	1-0	0-12.8	0-9.6	0-6.4	0-3.2	0-1.6	0-1.2	0-.9	0-.6	0-.3
Lindane											
25	1-0	0-8	0-6.4	0-4.8	0-3.2	0-1.6	0-.8	0-.6	0-.45	0-.3	0-.15

REPORT OF COMMITTEE ON PASTURE

This committee believes that because pasture constitutes the major source of feed for livestock in the Northeastern, South Atlantic, and South Central States, the problem of pasture improvement is one of the most important phases and opportunities of our livestock program.

The committee recognizes that considerable work has been done along these lines and commends those responsible for it, but it also is of the opinion that the field of pasture improvement and management has only been surveyed and that much more research should be done.

The committee recognizes differences in areas as to pasture plants, soil types, soil fertility, land use, rainfall, climate, and growing seasons, but the following recommendations apply to all areas:

1. The increased use of fertilizer and lime in accordance with the recommendations of the various States will increase yield and quality of forage from pastures.
2. Pasture management must be improved to prevent over or under grazing, especially where increased yields result from fertilization and new pasture plants.
3. The use of pasture plants recommended for the various areas will increase yields, especially in the right combinations.
4. The use of temporary pasture plants, such as cereal grains, at the beginning or end of the normal grazing season will increase the length of the pasture season in many areas.
5. The use of emergency pasture plants will increase pasturage, especially during periods of drought or scant rainfall or during the midsummer season.
6. The use of plants with different seasons of maturity and production should be encouraged to produce a more uniform supply of pasture.
7. The use of irrigation in certain areas should be encouraged to stimulate pasture growth especially where variations in seasonal production exist.
8. Considerable research in all these fields must be conducted to measure results in terms of forage or gains produced per acre and to determine the value of supplemental grain feeding on pasture.
9. An educational program must be instituted to remove the prejudice against grass-fattened beef, and research should be conducted to establish the quality of such grass-fattened beef.
10. With the improved pasture program that has been followed to date, serious problems have confronted cattle and sheep producers who used some of the newer legumes, which have produced bloat to the stage where it has caused serious mortality in animals, and high financial loss. A comprehensive research program is mandatory in all sections to try to overcome this problem.

11. A nation-wide research program is recommended for determining the need for all mineral elements, especially the minor elements, the deficiencies of which may show up with the increased yield of forage crops due to greater fertilization. This research should include soil and crop analysis and where deficiencies exist, should include recommendations as to sources of supply for livestock.
12. In addition to cattle and sheep, it is recommended that an increased use of legumes, cereals, and rape be encouraged in the economical production of swine.
13. The committee believes that one of the best approaches to the problem of soil conservation in all sections of the country is through the greater use of pasture on livestock farms.
14. The committee believes that the continued cooperative program between the animal and dairy husbandry interests and such other departments as agronomy, soils, veterinary medicine, agricultural engineering, feed and soil testing laboratories, and the Soil Conservation Service is vital to the success of an enlarged pasture program and should be encouraged.
15. The committee also believes that the activities of the American Meat Institute, the National Livestock and Meat Board, and other marketing research and educational agencies working with them, should be encouraged in showing the value of meat in the diet.
16. The committee finally believes that these Annual Inter-Regional Production and Marketing Conferences have proved to be of excellent value to the livestock industry in all the areas concerned and extends its appreciation to the administrative officers in the various State institutions and agencies and in the Federal Government for their cooperative attitude and support.

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C. E. Bell, Jr., Georgia
D. C. Gaylord, Connecticut
J. T. Graves, South Carolina
R. M. Lancaster, Mississippi
J. B. Outhouse, Maryland
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REPORT OF COMMITTEE ON BEEF CATTLE PERFORMANCE

In past years, emphasis in beef cattle improvement has been placed on conformation and show ring standards. More importance and recognition should be given to performance, such as feed-lot gains, birth weights, weaning weights, and grading of breeding stock.

Performance studies have been under way for more than 15 years at the USDA Range Livestock Station, Miles City, Mont. Beef cattle research at Front Royal, Va., is also being done along performance lines. California and some other States have done work in this field. The work to date indicates that rate of gain and type are highly heritable. They seem to be independent of each other.

This committee believes it would be helpful if the Federal Extension Service would summarize the available material from various sources, so that the livestock extension specialist can familiarize himself with current information.

Both the purebred breeders and commercial producers can make contributions in their respective fields in beef-cattle performance work. Purebred breeders should be encouraged to get feed-lot performance records on all sires used by feeding and keeping records on weanling calves for a test period.

Herd classification offers purebred breeders another method of measuring performance of breeding stock. This type of program can best be conducted with the cooperation of the purebred breed associations.

Many of our commercial producers can gain valuable information on the performance of their breeding stock by keeping records, such as birth dates, identification, birth weights, weaning or market weights, and feeder grades of all calves. The feeder calf sales offer a good opportunity for extension livestock specialists to obtain much information on grade and weaning or sale weights. As many farmers as possible should be encouraged to keep records, at least of birth dates, and should practice ear tagging for identification. This information should be available to owners in improving the performance of their commercial herds.

Performance records are also being obtained by some of the extension workers in State beef production projects. These programs can make a contribution and should be encouraged.

Field days to observe and discuss feed-lot performance data on bulls that have been tested afford an opportunity to disseminate information on this subject. The beef-cattle research people at Front Royal plan to have a field day and sale in early May 1951. This field day and sale will offer an opportunity to acquaint leading beef producers with this performance program. Some 20-odd tested bulls will be on exhibit and sold to interested farmers.

This committee recommends that State beef-cattle performance programs be developed jointly by the extension and research workers. We also recommend that new techniques and methods of measuring performance in beef cattle be developed by the experiment stations.

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PROGRESS IN TESTING BEEF CATTLE FOR PERFORMANCE

(Material received too late for inclusion in body of report)

- Summary of Remarks -

By E. J. Warwick, BAI

Rather extensive experiments at the Miles City, Mont., and Beltsville, Md., stations of the Bureau of Animal Industry and at a few State experiment stations during the past 15 years have clearly demonstrated that beef cattle vary tremendously in their productivity. At Miles City, where over 120 Hereford sires have been fed out individually, bred to random groups of cows, and their steer progenies fed out under standard conditions, there has been a variation of from 3 to 4 times in feed-lot profit between progenies fed out within the same year.

Preliminary work indicates that factors important in the production of profitable cattle, including rate of gain, efficiency of gain, live animal grades, and carcass grades are rather highly heritable and that progress in breeding more profitable cattle should be possible.

Under provisions of the Research and Marketing Act of 1946, three regional beef cattle breeding research projects have been established. Eleven states have active projects in the Western region, nine in the North Central, and ten in the Southern region. The organization of each regional project is decentralized and is under the general direction of a Technical Committee composed of one man from each cooperating State. The Bureau of Animal Industry furnishes some technical leadership, pays portions of the salaries of some State employees, and in some cases has furnished cattle to cooperating stations.

Work is being carried out on (1) methods of evaluating beef cattle, and (2) comparisons of breeding systems. In several of the projects the various beef cattle breeds are being sampled rather widely in efforts to identify the most productive existing strains of cattle in order that they may be propagated further.

In the Southern Coastal regions of the United States available evidence indicates that none of the 3 British breeds of cattle is at present perfectly adapted to the prevailing hot humid conditions. Efforts are being directed toward the identification of strains and breeds more nearly adapted to these conditions. Recognizing the importance of measuring performance in purebred and commercial herds, several States are developing extension projects closely tied in with their research work.

- Summary of Remarks by C. M. Kincaid, WPI -

Performance in beef cattle has two components: (1) efficiency in the use of feed, and (2) type or conformation. Individual record of performance feeding tests on young bulls and steers have been carried on in Virginia at Blacksburg and the Beef Cattle Research Station at Front Royal. Type ratings have been made at the beginning and end of the feeding tests in which individual growth rate and feed consumption was measured. The fast and slow gaining bulls in the bull-feeding tests have been mated to cows in a test herd for direct estimates of the progress to be expected from the selection for growth rate. Preliminary information from this record of performance feeding work suggest that conformation and rate of gain are more or less independent of each other. The data also suggest that performance in the feed lot and in the pasture may be positively correlated. It appears that rate of gain may provide a good approximation of efficiency in the use of feed but this needs to be confirmed by further work.

